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Tretoheliocephala compacta gen. & sp. nov. from the Brazilian semi-arid region

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Abstract—A new genus and species, *Tretoheliocephala compacta*, found on decaying leaves of an unidentified plant, is described and illustrated. It is characterized by macronematous, erect dark brown conidiophores with a compact cluster of globose, monotretic conidiogenous cells, which produce solitary or blastocatenate, ovoid, oblong, dolabriform, sub-obpyriform or obcuneiform, 0–2-septate, brown conidia.

Key words—*Ascomycota*, hyphomycetes, taxonomy, tropics

Introduction

The diversity of conidial fungi in the Brazilian semi-arid region has received little attention. However, recent studies conducted in Caatinga biome reveal a high number of new microfungal species (Almeida et al. 2016, Conceição et al. 2016, Monteiro et al. 2016, Silva et al. 2016). During a survey of hyphomycetes associated with plant materials from Bahia state, a conspicuous fungus was collected that showed remarkable differences from all previously described genera (Seifert et al. 2011) and is described here as new.

Materials & methods

Samples of leaf litter were placed in plastic bags for transport to the laboratory, where they were placed in Petri dish moist chambers and stored at 25°C for 30 days in a 170 L polystyrene box with 200 mL sterile water plus 2 mL glycerol (Castañeda-Ruiz et al. 2016). Mounts were prepared in PVL (polyvinyl alcohol and lactic acid) and measurements were made at ×1000 magnification. Micrographs were obtained with an Olympus BX51 microscope equipped with bright field and Nomarski interference optics. The specimens, including the holotype, are deposited in the Herbarium of Universidade Estadual de Feira de Santana, Bahia, Brazil (HUEFS).

Taxonomy

Tretoheliocephala Gusmão, J.S. Monteiro & R.F. Castañeda, **gen. nov.**

IndexFungorum IF553563

Differs from *Heliocephala* by its tretic conidial ontogeny.

Type species: *Tretoheliocephala compacta* Gusmão et al.

Etymology: Latin, *treto-*, referring to the tretic conidial ontogeny + *-heliocephala,* referring to the genus *Heliocephala.*

Conidial fungi. Colonies on the natural substratum effuse, hairy, dark brown or black. Conidiophores macronematous, mononematous, erect, unbranched or branched, cylindrical below, capitate at the apex, septate, with a distinct smooth or verruculose, brown or dark brown. Conidiogenous cells monotretic, discrete, globose, determinate, brown to dark brown, forming a more or less spherical cluster. Conidial secession schizolytic. Conidia solitary or blastocatenate, unicellular or euseptate, ovoid, oblong, dolabriform, subobpyriform or obcuneiform, smooth, pale brown or brown.

Tretoheliocephala compacta Gusmão, J.S. Monteiro & R.F. Castañeda, **sp. nov.**

Figs 1, 2

IndexFungorum IF553564

Differs from *Heliocephala* spp. by its monotretic conidiogenous cells.

Type: Brazil, Bahia: Mucugê, Parque Nacional da Chapada Diamantina, 13°00′S 41°22′W, on decaying of unidentified plant, 10 January 2005, coll. L.F.P. Gusmão (**Holotype**, HUEFS 81045).

Etymology: Latin, *compacta,* referring to the compact arrangement of conidiogenous cells in the capitulum.

Colonies on the natural substratum effuse, hairy, amphigenous, dark brown or black. Mycelium mostly immersed, composed of septate, smooth, brown hyphae, 1–2.5 µm diam. Conidiophores macronematous, mononematous, cylindrical below, capitate at the apex, erect, straight, robust, with 1–3 enteroblastic percurrent extension, 7–10-septate, unbranched or branched above, smooth below, somewhat verrucose or with remains of the old collapsed conidiogenous cells embedded near of each enteroblastic percurrent

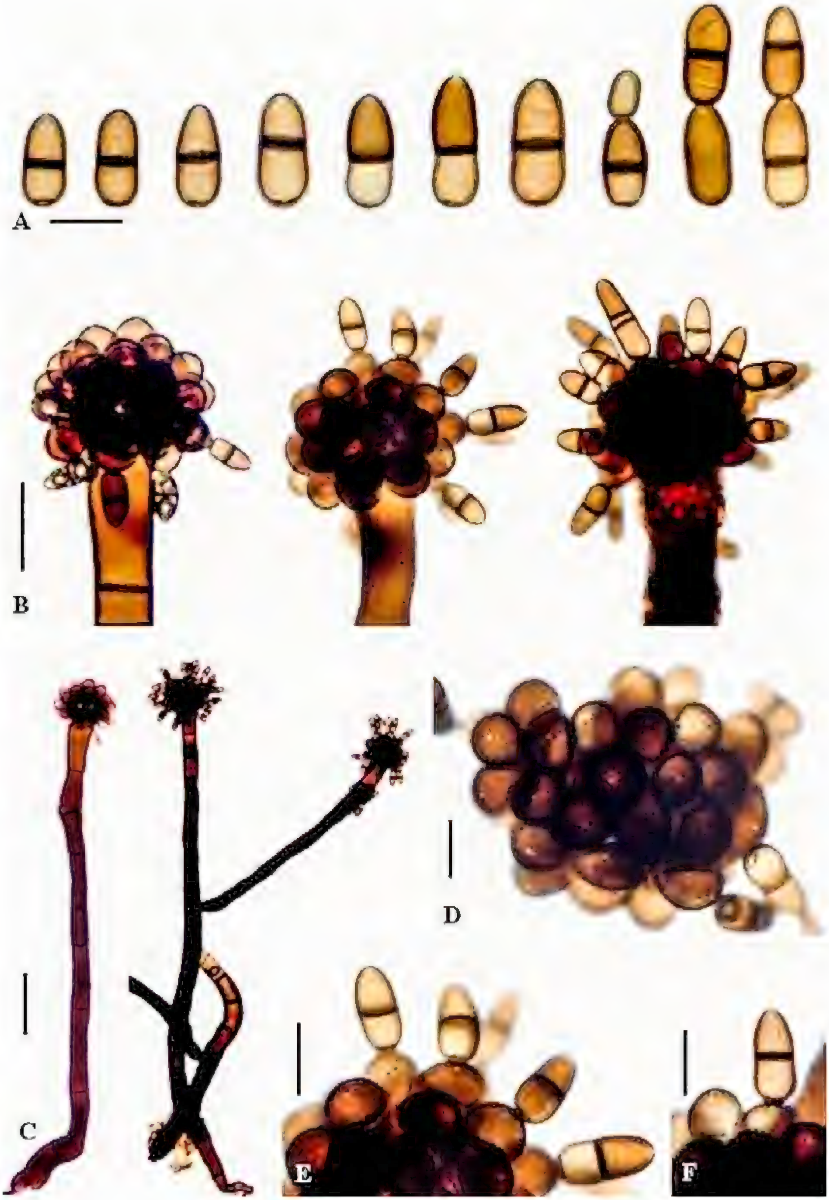

Fig. 1. *Tretoheliocephala compacta* (holotype, HUEFS 81045). A. Conidia. B. Clusters of conidiogenous cells and conidia. C. Conidiophores, conidiogenous cells, and conidia. D. Conidiogenous cells. E, F. Conidiogenous cells and conidia. Scale bars: A, D–F = 10 µm; B = 20 µm; C = 50 µm.

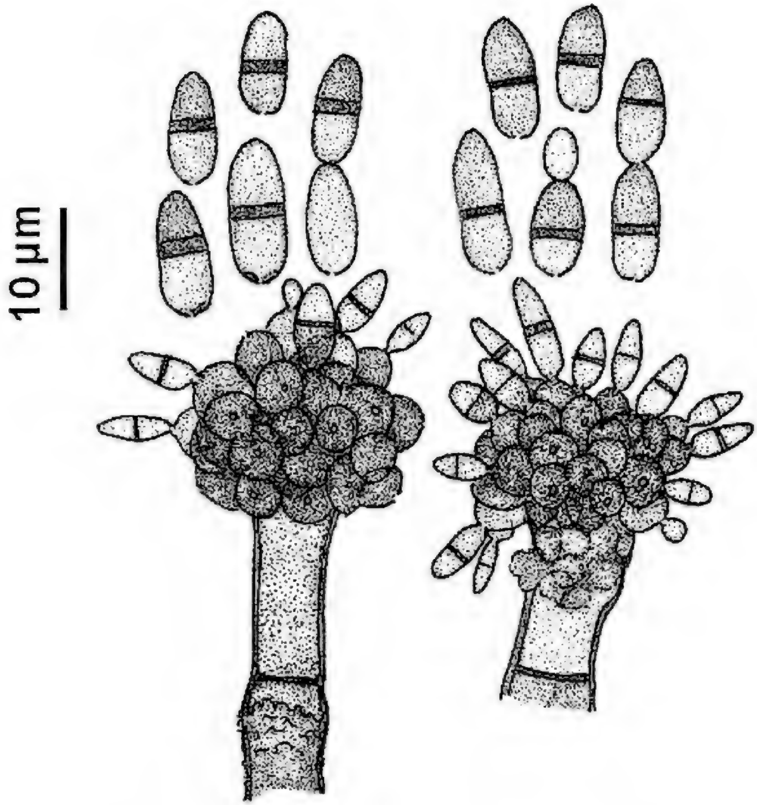

Fig. 2. *Tretoheliocephala compacta* (holotype, HUEFS 81045).
Conidiogenous cells and conidia. Scale bar = 10 µm.

regeneration of the conidiophores, black below, dark brown or brown near the conidiogenous capitulum, 320–700 × 15–19 µm; branches black, 200–300 × 13–15 µm. Conidiogenous cells monotretic, discrete, globose, dark brown or brown, smooth, determinate, 8–12 µm diam, disposed in a compact cluster forming of the more or less spherical capitulum. Conidial secession schizolytic. Conidia solitary or blastocatenate, ovoid, oblong, dolabriform, subobpyriform or obcuneiform, 0–2-septate, mostly 1-septate, 12–15(–21) × 6–7 µm, pale brown, brown or dark brown, sometimes with the basal cell paler than the apical cell, black at septa.

Comments: *Heliocephala* V. Rao et al. resembles *Tretoheliocephala*, but *Heliocephala* is characterized by conidiophores that are macronematous, mononematous, brown, solitary, erect, straight or flexuous, with short branches and bearing terminal clusters of conidiogenous cells or elongated percurrently and bearing discrete clusters of conidiogenous cells along their lengths. *Heliocephala* also produces conidiogenous cells that are monoblastic, hyaline to light brown, ampulliform to lageniform borne on the short branches and conidia that are obclavate to navicular, subhyaline to olivaceous, 1–3-septate, rostrate, sometimes germinating at the rostrum to produce secondary clusters of conidiogenous cells (Decock et al. 1998, Heredia et al. 2011, Kumaresan & Srinivasan 2002, Mel'nik et al. 2013, Rao et al. 1984). These two genera are easily separated.

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Literature cited

Almeida DAC, Miller NA, Gusmão LFP. 2016. Brazilian semi-arid ascomycetes II: new and interesting records of *Bertiaceae*, *Nitschkiaceae* and *Scortechiniaceae* (*Coronophorales, Sordariomycetes*). Nova Hedwigia 102: 513–522. https://doi.org//10.1127/nova_hedwigia/2016/0324

Castañeda-Ruiz RF, Heredia G, Gusmão LFP, Li DW. 2016. Fungal diversity of Central and South America. 197–217, in Li DW (editor), Biology of Microfungi, Springer International Publishing. https://doi.org/10.1007/978-3-319-29137-69

Conceição LB, Marques MFO, Gusmão LFP, Monteiro JS, Castañeda-Ruiz RF. 2016. *Linkosia aquatica* sp. nov. from submerged plant debris from Brazil. Mycotaxon131: 297–304. https://doi.org/10.5248/131.297

Decock C, Robert V, Masuka AJ. 1998. *Heliocephala zimbabweensis* sp. nov. from southern Africa. Mycologia 90: 330–333. https://doi.org/10.2307/3761310

Heredia GA, Castañeda Ruiz RF, Arias Mota RA, Bogale M, Untereiner WA. 2011. A new species of *Heliocephala* from Mexico with an assessment of the systematic positions of the anamorph genera *Heliocephala* and *Holubovaniella*. Mycologia 103: 631–640. https://doi.org/10.3852/10-230

Kumaresan V, Srinivasan M. 2002. *Heliocephala natarajanii* sp. nov from India. Cryptogamie, Mycologie 23: 329–333.

Mel'nik VA, Castañeda-Ruiz RF, Granados M. 2013. A new species of *Heliocephala* from Vietnam. Mycotaxon 123: 281–284. https://doi.org/10.5248/123.281

Monteiro JS, Conceição LB, Marques MFO, Gusmão LFP, Castañeda-Ruiz, RF. 2016. *Dictyoaquaphila appendiculata* gen & sp. nov. from submerged wood from Brazil. Mycotaxon 131: 177–183. https://doi.org/10.5248/131.177

Rao VG, Reddy KA, Hoog GS de. 1984. *Heliocephala*, a new genus of dematiaceous hyphomycetes. Persoonia 12: 239–242.

Seifert K, Morgan-Jones G, Gams W, Kendrick B. 2011. The genera of hyphomycetes. CBS Biodiversity Series 9. 997 p.

Silva CR, Gusmão LFP, Castañeda-Ruiz RF. 2016. *Dictyosporium amoenum* sp. nov. from Chapada Diamantina, Bahia, Brazil. Mycotaxon 130: 1125–1133. https://doi.org/10.5248/130.1125